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| 09/849,398 | 05/07/2001 | Kazutoshi Yasunaga | P19926 | 1049 |

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| EXAMINER |
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OPSASNICK, MICHAEL N

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| ART UNIT | PAPER NUMBER |
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2655

DATE MAILED: 01/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/849,398

Applicant(s)

YASUNAGA ET AL.

Examiner

Michael N. Opsasnick

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on response received on 7/10/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/101,186.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Ozawa (5826226).

As per claims 1, Ozawa (5826226) teaches:

“an excitation vector generator, comprising: an input vector providing system capable of providing an input vector comprising at least one pulse, each pulse having a predetermined position and a respective polarity” as excitation quantization circuit provides a plurality of pulses (abstract, col. 2 lines 29-40) having certain positions (col. 2 lines 55-60); and polarity (col. 12 lines 47-51);

“a fixed waveform storage system capable of storing one or more fixed waveforms” as codebook storage storing information for synthesis (col. 11 lines 1-30);

“a convolution system capable of convoluting said fixed waveforms with said input vector to output an excitation vector” as convolution calculation (col. 7 lines 4-22) utilizing the codebook (col. 7 lines 22-30).

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“inputting both the input vector and the at least one fixed waveform to a generating device to produce a component utilized to generate an excitation vector” (and shifting system) as arranging according to amplitudes, pulses, and positions (col. 8 lines 40-55);

As per claim 2, Ozawa (5826226) teaches:

“wherein said convolution system spreads an energy distribution of said input vector based upon said at least one fixed waveform over a subframe” as spreading the input vector over the waveform (as in the convolution equation, col. 7 lines 5-18).

As per claim 3, Ozawa (5826226) teaches:

“convolution system performs linear convolution” as linear convolution (equation 9)

As per claim 4, Ozawa (5826226) teaches:

“wherein said input vector is provided from an algebraic codebook” as input vector from algebraic codebook (col. 6 lines 61-66);

As per claim 5, Ozawa (5826226) teaches:

“wherein said input vector is a vector having a plurality of non-zero samples” as input vector having amplitude of 1 (col. 12 lines 44-51).

As per claim 6, Ozawa (5826226) teaches:

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“a plurality of fixed waveforms” as LSP storage codebook containing multiple LSP parameters (col. 5 lines 54-63) on the subframe.

As per claim 7, Ozawa (5826226) teaches:

“wherein said convolution system uses one of said plurality of fixed waveforms for each subframe” as LSP storage codebook containing multiple LSP parameters (col. 5 lines 54-63) on the subframe.

As per claims 8,16, Ozawa (5826226) teaches modifying the energy distribution (col. 7 lines 5-18).

As per claim 9, Ozawa (5826226) teaches “a method of providing an excitation vector used in the production of synthesized speech, said method comprising:

providing an input vector having an energy distribution, said input vector comprising at least on pulse, each pulse having a position and a polarity” as excitation quantization circuit provides a plurality of pulses (abstract, col. 2 lines 29-40) having certain positions (col. 2 lines 55-60); and polarity (col. 12 lines 47-51);

“storing at least one fixed waveform” as codebook storage storing information for synthesis (col. 11 lines 1-30);

“convoluting said at least one fixed waveforms with said input vector” as convolution calculation (col. 7 lines 4-22) utilizing the codebook (col. 7 lines 22-30);

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“outputting the convoluted input vector as an excitation vector ” as output vector (col. 7 line 10).

As per claim 10, Ozawa (5826226) teaches “said input vector is a vector having a plurality of non-zero samples” as input vector having amplitude of 1 (col. 12 lines 44-51);

As per claim 11, Ozawa (5826226) teaches “wherein said input vector is provided from an algebraic codebook” as input vector from adaptive codebook (col. 6 lines 61-66).

As per claim 12, Ozawa (5826226) teaches modifying an energy distribution of the input vector (as spreading the input vector over the waveform (as in the convolution equation, col. 7 lines 5-18)).

As per claim 13, Ozawa (5826226) teaches a system for providing an excitation vector used in the production of synthesized speech (as speech coding apparatus, col. 1 lines 7-11) comprising:

“an input vector comprising at least one pulse, each pulse having a position and a polarity” as excitation quantization circuit provides a plurality of pulses (abstract, col. 2 lines 29-40) having certain positions (col. 2 lines 55-60); and polarity (col. 12 lines 47-51);

“at least one fixed waveforms” as codebook storage storing information for synthesis (col. 11 lines 1-30);

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“a convolution system that is capable of convoluting said fixed waveform with said input vector” as convolution calculation (col. 7 lines 4-22) utilizing the codebook (col. 7 lines 22-30);

“an output system that is capable of outputting the convoluted input vector as an excitation vector” as output vector representing the excitation vector (col. 7 line 10).

As per claim 14, Ozawa (5826226) teaches:

“wherein said input vector is a vector having a plurality of non-zero samples” as input vector having amplitude of 1 (col. 12 lines 44-51).

As per claim 15, Ozawa (5826226) teaches:

“wherein said convolution system spreads an energy distribution of said input vector” as spreading the input vector over the waveform (as in the convolution equation, col. 7 lines 5-18).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozawa (5826226) in view of Tzeng (5293449).

As per claims 17,19, Ozawa (5826226) teaches a method and system of providing an excitation vector used in the production of synthesized speech (as speech coding apparatus, col. 1 lines 7-11) comprising:

“at least one input vector, each comprising a plurality of pulses, each of said pulses having a position and a polarity” as excitation quantization circuit provides a plurality of pulses (abstract, col. 2 lines 29-40) having certain positions (col. 2 lines 55-60); and polarity (col. 12 lines 47-51);

“at least first sets of at least one fixed waveforms” as codebook storage storing information for synthesis (col. 11 lines 1-30);

“ a convolution system wherein.....in a first position, an output of said excitation vector generator results from a convolution of said first set of at least one fixed waveform in accordance with the polarity and the position of said plurality of pulses of said at least one input vector, as convoluted by said convolution system” as convolution calculation (col. 7 lines 4-22) utilizing the codebook (col. 7 lines 22-30), according to polarity and pulse position (col. 2 lines 55-60); (col. 12 lines 47-51).

Ozawa (5826226) does not explicitly teach the claimed limitations of:

“ a switch moveable to a plurality of positions, each position being responsive to one of a plurality of conditions”, and “when said switch is in a second position, an output of said

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excitation vector generator is based at least partially upon said second set of at least one fixed waveform" (Ozawa (5826226) teaches a single structure codebook, however, only one set of fixed waveforms), however, Tzeng (5293449) teaches a reference codebook structure that can switch (Fig. 4, subblock 406) between an unvoiced codebook (Fig. 4, subblock 410) and voiced codebook (Fig. 4, subblock 408), and an excitation vector output from either codebook based upon the type of speech determined from a V/UV decision (col. 4 lines 45-63). Therefore, it would have been obvious to one of ordinary skill in the art of speech coding/synthesis to modify the teachings of Ozawa (5826226) with a split codebook/codevector structure (as taught by Tzeng) because adapting a V/UV codebook structure/synthesis would provide a more efficient coding process and a improved speech quality (col. 3 lines 15-23).

As per claims 18 and 20, Ozawa (5826226) teaches modifying the energy distribution (col. 7 lines 5-18).

Response to Arguments

5. Applicant's arguments filed July 10, 2003 have been fully considered but they are not persuasive. As per the arguments regarding Ozawa's convolution calculation being different from applicant's invention, examiner argues that the features upon which applicant relies (i.e., the actual convolution calculation involved with a synthesis filter) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26

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USPQ2d 1057 (Fed. Cir. 1993). As per applicant's arguments that Tzeng does not teach storing fixed waveforms, examiner argues that Tzeng teaches storage of the residuals (col. 10 lines 44-51). Furthermore, it is well known in the art of CELP designs to contain a fixed codebook (or prestored waveforms -- see related art listed below -- Abe et al, 5581652, abstract; Cuperman et al, 4963034, col. 1 lines 35-47; Swaminathan et al, 5751903, col. 1 lines 29-39).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please see related art listed on the PTO-892 form.

7. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872 9314,

(for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Opsasnick, telephone number (703)305-4089, who is available Tuesday-Thursday, 9am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Doris To, can be reached at (703)305-4827. The facsimile phone number for this group is (703)872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 2600 receptionist whose telephone number is (703) 305-4750, the 2600 Customer Service telephone number is (703) 306-0377.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mno

1/7/05

Vijay Chawan
1/8/05

**VIJAY CHAWAN
PRIMARY EXAMINER**